

What is claimed is:

1. A concrete composition comprising:
cement; and
rubber aggregate comprised of a predetermined size and shape, wherein said
rubber aggregate is between about 0.01 and about 35 percent by weight of said concrete
composition, and wherein said concrete composition is resistant to impact.
2. The concrete composition of Claim 1, wherein about 50 to about 95
percent of the weight of said rubber aggregate is adapted to pass through a 1-inch sieve.
3. The concrete composition of Claim 1, wherein about 20 to about 75
percent of the weight of said rubber aggregate is adapted to pass through a .95-inch sieve.
4. The concrete composition of Claim 1, wherein about 0 to about 30 percent
of the weight of said rubber aggregate is adapted to pass through a 0.85-inch sieve and
less than about 10 percent of the weight of said rubber aggregate is retained on a 0.75-
inch sieve.
5. The concrete composition of Claim 1, wherein said cement is present in an
amount of from about 5 to about 20 percent by weight of the total composition.

6. The concrete composition of Claim 1, wherein the shape of a cross section of individual particles of said rubber aggregate is generally at least one of a square, a triangle, a rectangle, an octagon, a cross, and a zig zag.

7. The concrete composition of Claim 1, wherein said rubber aggregate is generated from rubber tires that are cut such that the resulting edges are generally smooth.

8. A method of making a concrete composition, comprising the steps of:
providing a source of rubber aggregate;
cutting said source of rubber aggregate into predetermined shapes;
sorting said rubber aggregate of predetermined shapes by size dictated by the
5 intended use of the concrete composition;
mixing cement and water to create a composite material; and
adding said aggregate of predetermined shapes to said composite material,
wherein a concrete composition is formed that possesses increased resistance to impact
loads.

9. The method of Claim 8, further comprising the step of adding an additive
to the composite material, wherein said additive is sand, gravel, plasticizer, carbon fiber,
fiberglass, reinforcing members, or fly ash.

10. The method of Claim 8, further comprising the step of cleaning said
aggregate of predetermined shapes before said adding step.

11. The method of Claim 8, wherein the shape of a cross section of a majority
of said smaller pieces of rubber is substantially at least one of a triangle, a rectangle, a
square, an octagon, a cross, or a zig zag.

12. The method of Claim 8 , wherein said aggregate of predetermined shapes are cut by at least one of a water jet, an abrasive water jet, and a punch, wherein the sides of said aggregate of predetermined shapes have a substantially smooth surface.

13. A composite concrete material, comprising:

a cement mix;

a predetermined quantity of water;

a plurality of voids within said concrete composition that facilitate fluid drainage

5 through said concrete material;

a rubber aggregate of predetermined shapes and sizes, wherein said rubber aggregate is between about 0.01 and about 35 percent by weight of said concrete composition; and

a natural aggregate of substantially the same size as said rubber aggregate,

10 wherein said concrete composition is resistant to impacts.

14. The concrete material of Claim 13, wherein the weight of said cement per cubic yard of said concrete material is about 600 to 630 pounds.

15. The concrete material of Claim 13, wherein the weight of said natural aggregate per cubic yard of said concrete material is between about 2,000 to 2,500 pounds, wherein the weight of said rubber aggregate is between about 1,300 pounds.

16. The concrete composition of Claim 13, wherein the shape of a cross section of the individual particles of said rubber aggregate is generally at least one of a square, a triangle, a rectangle, an octagon, a cross, and a zig zag.

17. The concrete material of Claim 16, wherein said zig zag shape has a height of about 3.5 centimeters (1.38 inches), a thickness of about 5-10 centimeters (1.97-3.34 inches), and a width of about 2 centimeters (0.79 inches).

18. The concrete material of claim 13, wherein the torsional modulus is about 6.52×10^6 PSI (44.94 GPa) after a 21 day cure.

19. The concrete material of Claim 13, wherein the compression strength is about 3000 PSI after a 21 day cure.

20. The concrete material of Claim 16, wherein about 10 - 40% of said individual particles of said rubber aggregate are zig zag shaped.

21. The concrete composition of Claim 13, wherein said rubber aggregate is generated from rubber tires that are cut such that the resulting edges are generally smooth.